The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1.   A method of preparing a circuit layout for optical and process correction (OPC), comprising:

receiving a description of a layer of an integrated circuit that is defined as a number of polygons;

fragmenting a polygon into a number of edge segments that extend around the perimeter of the polygon;

computing a simulation of the layout that estimates light intensity values in an area of at least one of the edge segments;

calculating a curvature of the light intensity in the area of the at least one edge segment; and

using the curvature of the light intensity to refragment the edge segments of the polygon.

2.   The method of Claim 1, wherein the refragmentation of the edge segments is performed by:

increasing the density of the edge segments if the curvature of the light intensity calculated for an edge segment is greater than a predetermined threshold.

3.   The method of Claim 1, wherein the refragmentation of the edge segments is performed by:

calculating a curvature of the light intensity in the area of an adjacent edge segment; and

decreasing the density of the edge segments if the curvature of the light intensity calculated for adjacent edge segments is less than a predetermined threshold.

4.   The method of Claim 3, wherein the density of the edge segments is decreased by merging adjacent edge segments to create a larger edge segment.

5.   A computer readable medium including a sequence of program instructions recorded thereon that, when executed by one or more processors, cause the one or more processors to implement the method of any of Claims 1-4.

6. A mask/reticle used for the creation of one or more layers of an integrated circuit that is created using the method of any of Claims 1-4.

7. A file describing a layer of an integrated circuit that has been prepared using the method of any of Claims 1-4.

8. A method for fragmenting polygons that describe structures of an object to be created via photolithography comprising:

performing an initial fragmentation that divides a polygon into a number of edge segments that extend around the perimeter of the polygon;

computing a simulation of how the structures will be printed on a wafer under defined process conditions; and

using the results of the simulation to adjust the fragmentation of the polygons.

9. The method of Claim 8, wherein the simulation estimates the curvature of light intensity values in an area of each edge segment and the fragmentation of polygons is adjusted based on the curvature of the light intensity in the area around each edge segment.

10. The method of Claim 8, wherein the simulation estimates a gradient angle of light intensity and/or a slope of light intensity parallel to an edge segment of each edge segment and the fragmentation of the polygons is adjusted based on the estimate for each edge segment.

11. The method of Claim 9, wherein the curvature of light intensity is estimated by calculating a rate of change in light intensity between adjacent points in the area of an edge segment.

12. A computer readable medium that stores a sequence of program instructions that when executed by one or more computers cause the one or more computers to implement the method of any of Claims 8-11.

13. A file describing objects to be created via photolithography that has been prepared using the method of any of Claims 8-11.